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DE ES FR GB IT SE(71) Applicant: **Huck, Héctor Leon**
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Rosario 2000, Santa Fe(AR)(72) Inventor: **Huck, Héctor Leon**
3 de Febrero 5024
Rosario 2000, Santa Fe(AR)(74) Representative: **Abitz, Walter, Dr.-Ing. et al**
Abitz, Morf, Gritschneider Freiherr von
Wittgenstein Postfach 86 01 09
W-8000 München 86 (DE)(54) **Pouring spout with a tamper-proof closure.**

(57) The present invention relates to a pouring spout for a container. The pouring spout is made of two parts: the first one is the real pouring spout presenting a pouring lip (8) and a skirt penetrating inside the container neck, the second one is a hinged tamper-proof closure with a closing plug (26).

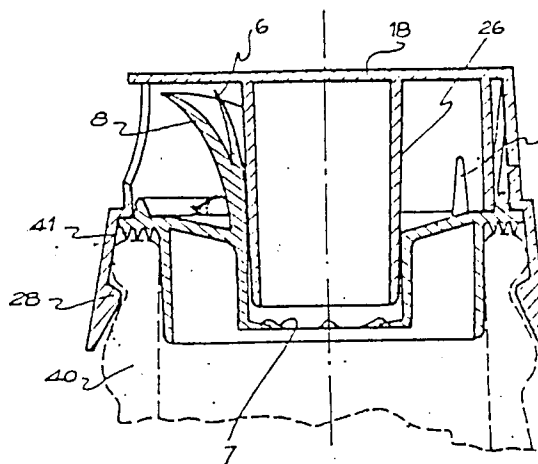


FIG.6

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Field of the Invention:

The present invention relates to a tamper-proof, hermetic, anti-dripping and recovering closure for plastic, tin plate or glass containers which is disposed in the opening thereof and is made of plastic material, forming a safety closure that allows to reveal if same has been tampered.

Of the closures for containers existing in the market there are embodiments comprising a body which can be cylindrical or frustum conical, which are fitted on the outside portion of the neck. The upper edge thereof extends inwards and downwards for terminating at a horizontal track, from which central part projects a pouring spout. In same instances these pouring spouts have a perforation and in other instances it is necessary to cut the tip for pouring the container contents.

Sometimes a hinged lid is disposed for closing, the hanging being effected by means of strips of the same plastic material as the main body, which join the lid to the lower or the upper part of the main body, according to each case.

These lids have at the inner face thereof, and centrally disposed, a protruding body, which according to the case shall perform the function of male or female closing.

There is another type of closure constituted by two pieces, of which the first one has a washer-like ring, intended to rest upon the edge of the container mouth, with two cylindrical skirts projecting downwards, the external skirt being secured to the container neck by means of an inner retaining ring.

These two skirts, in turn, slightly extend upwards, together with another cylindrical higher wall located somewhat inwardly, forming three coaxial cylinders, which allow lodging of the two cylinders, which are also coaxial with the former ones, and that depend from a disk like lid. The device has a tearable seal around, which there is no safety seal concerning tampering, but that acts as a grip for opening, since a gripping ring does not join the two bodies.

Therefore the aforementioned embodiments do not oppose at all to the present invention, since they do not perform the functions of the tamper-proofing, hermeticity and material recovering, at the same time. Those embodiments neither have the advantage of the possibility of reclosing hermetically after each use.

In the market exists other type of lid also having two skirts which lodge the container neck. The inner skirt extends upwards for forming a pouring tube, which is surrounding by two cylindrical walls depending from a "disk-lid" and, surrounding the external cylindrical wall, a tearable seal is provided, with a lug for pulling and breaking a weakening line, which joins the lower edge of the seal with

the external edge thereof. This seal is not tamper-proof, since it is not joined to the lid, it is being possible to infringe the safety, simply by raising the "disk-lid" with a finger nail.

The object of the present invention consists in providing a new closure assembly for containers, of very light weight, because of the little material that is necessary for its construction. It is pressure placed very easily on the neck of the container; it distinctly and rapidly reveals tampering, since it is necessary to break the two weakening lines that it has, for accessing to the container contents.

Once opened, the closure can be reclosed hermetically, such to avoid volatility of the liquid, as well as spilling when the container is placed in a non-vertical position.

When the stream of liquid is interrupted in turn, by means of a special shaping, the remaining liquid falls again to the interior of the container, thus avoiding smearing of the outside part of the container, the container surface is thus kept clean, and staining of the hands or the material covering the table is avoided.

When the liquid contained in the container is spilled, the stream does not bubble and comes out evenly.

For these purposes, the present invention provides a closure for containers that is tamper-proof, hermetic, antidripping and recovers the liquid, and which is constituted by two bodies, one that is insertable inside the container neck, and the second that tightly embraces the outer portion of said neck, the first body being completely covered by the second body, the first body being composed by a centrally perforated disk, from which bottom plane project, a skirt, close to the perimeter of said perforated disk and a collar that is coaxial with the skirt, and with the beginning at the part of the perforation of the perforated disk, a circular shoulder protruding from the upper plane of said perforated disk and close to the perimeter thereof, the collar extending over the upper plane, by means of a substantially cylindrical tube. A forming a pouring spout, the second body covering the first body and having the shape of a lid constituted by a lower skirt which internally has an inner circular shoulder at its upper part, said skirt extending upwards by means of two side wings, the forward ends of which leave a space in the fashion of a pouring aperture and the rear ends, another free space, while the upper ends of said wings form a tearable closure with an upper disk, which through its rear part is hinge joined by means of hinging strips to the upper edge of the skirt, said disk extending at its front part, giving rise to a flange, while from the inner face of said disk downwards projects a cylindrical skirt which is coaxial with the side wings and is internally located relative to same, surrounding in

turn the substantially cylindrical tube forming the pouring spout, the continuity of the cylindrical skirt being interrupted at its front part, underneath the flange of the upper disk, while from the central area and coaxially to the cylindrical skirt and also in the same plane as this, a cylindrical body is created, the lower external surface of which fits tightly in the internal surface of the collar of the first body.

The present invention shall now be described with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view showing the assembly of the two bodies, placed over the neck of the container, with the upper lid opened.

Figure 2 is also a perspective view of the first body only.

Figure 3 is also a perspective view of the second body, which shows the closure before breaking the safety seal, and placed over the container neck.

Figure 4 is a perspective view, also of the second body, but already opened, i.e., after breaking the weak line.

Figure 5 is a cross section view of the assembly enclosed composition.

Figure 6 is a variation for showing the closed device, in section, placed over the neck of a glass container.

Figure 7 is a cross section view of a variation that shows the device placed over the opening of a tin plate container.

Figure 8 is vertical section of modified embodiment of the hermetic closure.

In order to ease the understanding of the figures that shall be described hereinafter, a listing of the reference numbers and their corresponding designations follows:

- A- First body
- B- Second body
- 1- Centrally perforated disk
- 2- Insertion skirt
- 3- Circular shoulder
- 4- Edge of the disk perforation
- 5- Guiding pins
- 6- Spur
- 7- Horizontal teeth
- 8- Pouring spout
- 9, 9'- Pouring wings
- 10- Collar
- 11- Lower full skirt
- 12, 12'- Side wings
- 13- Pouring aperture
- 14, 14'- Forward side ends of the wings
- 15, 15'- Rear side ends of the wings
- 16, 16'- Upper ends of the wings
- 17, 17'- Tearable seals
- 18- Upper disk
- 19, 19'- Hinging strips

- 20- Central hinging strip
- 21- Upper edge of the "lower skirt"
- 22- Upper disk flange
- 23- Inner face of upper disk
- 24- Cylindrical skirt
- 25- Recovery aperture
- 26- Plugging cylindrical body
- 27- Free edge of the plugging cylinder
- 28- Internal retaining ring
- 29- Lower edge of the lower skirt
- 30- Partition
- 31- Inner circular shoulder of the lower skirt
- 32- Plastic container
- 33- Ramp surface
- 34- Funnel shaped upper edge
- 35- Cylindrical tube
- 36- Inner edge of the step
- 37- Upper lid
- 38- External retaining ring
- 39- Step
- 40- Glass container
- 41- Small rings of triangular section
- 42- Tin plane container
- 43- Abutting ring
- 44- Outer circular cavity of the lower skirt
- 45- Inner circumferential shoulder
- 46- Solid plugging cylindrical body
- 47- Narrow cylindrical tube

Figure 1 shows the assembly of the two bodies A and B mounted and placed over a plastic container; the closure being already opened.

The lower outer surface of body A seats upon the upper edge of the bottle neck and the upper surface of this area is in turn tightly tightened to an upper inner shoulder 31 of skirt 11. This is achieved because in the inner surface of skirt 11 there is a retaining circular shoulder or internal ring 28 which remains lodged underneath, which occurs after the closure is pressure placed. The pouring spout 8 is thus prevented from shifting sideways.

Bodies A and B shall be separately described hereinafter, for a better understanding thereof.

Figure 2 shows body A, where 1 represents a centrally perforated disk, in the upper face of which and in the vicinity of the perimeter extend a small wall or circular shoulder 3 which entirely surrounds said perimeter.

Inside this shoulder 3 and protruding from the opening rim, projects a substantially tubular wall 35 comprising two wings 9, 9' which when joining at their forward portion conform an upstanding pouring spout 8.

These wings 9, 9' are not joined at their rear part, such that is free space or recovery aperture 25 is left, through which the liquid left over from each dispensing operation shall return to the inte-

rior of the container. For easing the flow of the left over liquid, the floor at the forward part is higher than at rear part, creating a ramp 33 between the circular shoulder 3 and the tubular wall 35.

A spur 6 upstands from the beginning of the conjunction of the two wings 9, 9', which spur slightly surpasses the pouring spout 8. This spur 6 serves for regulating the stream of liquid, reducing the splashing and cooperating for returning the largest possible amount of remaining liquid into the interior of the container.

Two upstanding guiding pins 5 are disposed at the bottom part of ramp 33, these pins being parallel with each other. These guiding pins 5 serve for receiving a partition 30 and thus easing the proper placing of the lid 37 of body B. Guiding pins 5 further help in containing the left over liquid, and cooperate in forcing for its fall through the recovery aperture 25. Wings 9, 9' continue along edge, the opening of the perforated disk 11 and downwards by means of a collar 10 which has a slight conical shape inwards and downwards, which bears great importance since it tightly receives the plugging cylindrical body 26, allowing hermetic closing.

A series of horizontal teeth 7 radially extend from the lower edge of collar 10, which teeth 7 serve to cooperate in causing the stream of liquid to come out evenly.

An insertion skirt 2, which is the one that is introduced into the container neck, depends on the collar 10 lower plane, being external and coaxial to said collar.

In figure 3, which is a perspective view of body B (closed lid), reference number 11 represents a lower full skirt that serves for adjusting to the outer portion of the bottom neck, for which purpose it has a retaining ring 28 in its inner wall, which shall remain underneath an external circular protrusion of the bottom neck.

A step 39 is conformed at the upper edge 21 of lower entire skirt 11. Two side wings 12, 12' continue upwards inside the inner edge 36 of step 39. Wings 12, 12' are coaxial with skirt 11 and where they meet with each other at their front, the forward edges 14, 14' leave an aperture 13 that allows the exit of the liquid stream that pouring spout 8 of body A pours.

Upper ends 16, 16' of wings 12, 12' are joined by respective weakening lines 17, 17' to a horizontally disposed upper disk 18. These weakening lines conform a tearable seal 17, 17' which allows to detect tampering of the container contents.

The rear side ends 15, 15' of wings 12, 12' leave a space which is intended for hinging of lid 37, when opening the closure.

Upper disk continues at its forward portion, forming a flange 22 that positions in the space of the pouring aperture 13, and by means of which,

by slightly finger pushing upwards the closure shall be opened due to the tearing of the two weakening lines.

Three hinging strips 19, 19' depend on the rear part of disk 18, for joining with the inner edge of step 36.

Strips 19, 19' allow a smaller lateral shift of lid 37 when it is desired to close the device again, while the wider and central strip 20 serves for strengthening the hinge assembly.

Figure 4 shows the lid in open position. The tearing of the weakening lines has therefore occurred, and upper lid 37 is shown leaning backwards.

It can be seen that from the inner face 23 of disk 18 and close to its perimeter, a cylindrical skirt depends, said skirt being coaxial to the side wings 12, 12', and when lid 37 is closed it remains located between the side wings 12, 12' and cylindrical tube 35 of body A.

This cylindrical skirt 24 is discontinued underneath flange 22.

A plugging tube or cylindrical body depends on the central area of the disk 18 inner face 23. Plugging tube 26 is coaxial with the cylindrical skirt, and upon closing lid 37, it enters inside collar 10 for fitting tightly with its face edge at the area next to horizontal teeth.

In this way, the liquid contained in the container cannot pass to the pouring spout 8, since the roof of cylindrical body 26, constituted by inner surface 23 of upper disk 18 prevents passage of the liquid.

A small partition 30 is disposed at the inner face of cylindrical skirt 24 and at rear part thereof, at the height of the central hinging strip 20. Partition 30 divides the inner wall of cylindrical skirt 24 into two equal parts, and when lid 37 is closed it locates between guiding pins 5, cooperating in the enhancement of closing.

Figure 5 is a cross section view of the assembly in closed position.

Figure 6 shows a cross section view of a variation that is employed for glass containers 40. The variation consists of disposing at the lower face of body A and at the area between its exterior perimeter and the insertion skirt 2, a series of small rings of triangular section which are concentric and coaxial with said skirt.

These thin small rings serve for providing more tightness when the device is fitted in the neck of a glass bottle, since the retaining inner ring 28 of the lower entire skirt 11, when introducing in the slit space that the glass neck has at its outside portion, tightly pushes the assembly downwards and allows the deformation and accommodation of the small rings, or the ridges of same, to the generally irregular surface of the upper edge of said neck, greatly

cooperating in providing tightness between the plastic closure and the container glass.

Figure 7 shows a cross section view of a variation that is used when using the present invention in tin plate containers.

The variation consists of disposing an outer retaining ring 38 in the lower full skirt 11 and over this, leaving an external circular cavity 44 for lodging the edge of the container, an abutments ring 43 is arranged. This abutment ring 43 is located over the surface of the container lid, surrounding an area of the hole perimeter.

In this variation, the insertion skirt 2 of body A is leaned over the inner surface of the lower full skirt 11 of body B, which has an inner circumferential shoulder 45 for retaining body A.

Figure 8 shows a cross section view of other variations consisting of that the plugging cylindrical body is solid, with its end bevelled, which allows easy and tight lodging in the narrow cylindrical tube of body A.

Claims

1. A tamper proof, hermetic, anti-dripping and recovering closure, of the type constituted by two bodies, the first one that actuates as spillway for the container contents, and the second one, that covering completely the first one, is disposed at the container mouth, characterized in that the first of said bodies is composed by a centrally perforated disk from which bottom plane project, a skirt, close to the perimeter of said perforated disk and a collar that is coaxial with the skirt, and with the beginning at the part of the perforation of the perforated disk, a circular shoulder protruding from the upper plane of said perforated disk. and close to the perimeter thereof, the collar extending over the upper plane, by means of a substantially cylindrical tube. A forming a pouring spout, the second body covering the first body and having the shape of a lid constituted by a lower skirt which internally has an inner circular shoulder at its upper part, said skirt extending upwards by means of two side wings, the forward ends of which leave a space in the fashion of a pouring aperture and the rear ends, another free space, while the upper ends of said wings form a tearable closure with an upper disk, which through its rear part is hinge joined by means of hinging strips to the upper edge of the skirt, said disk extending at its front part, giving rise to a flange, while from the inner face of said disk downwards projects a cylindrical skirt which is coaxial with the side wings and is internally located relative to same, surrounding in turn the substantially cy-

lindrical tube forming the pouring spout, the continuity of the cylindrical skirt being interrupted at its front part, underneath the flange of the upper disk, while from the central area and coaxially to the cylindrical skirt and also in the same plane as this, a cylindrical body is created, the lower external surface of which fits tightly in the internal surface of the collar of the first body.

2. A closure for containers, according to claim 1, characterized in that the collar has a slight taper, such that slightly reduces the internal diameter downwards.

3. A closure for containers, according to claim 1, characterized in that the surface between the circular shoulder and the cylindrical tube is in the form of a ramp, with its largest height below the pouring spout.

4. A closure for containers, according to claim 1, characterized in that the side wings, being coaxial with the lower skirt, have a smallest radius with said lower skirt.

5. A closure for containers according to claim 1, characterized in that from the ramp lower surface upstand two guiding pins, parallelly disposed, within which fits a partition transversely incorporated in the inner face of the cylindrical skirt and at the height of the central hinging strip.

6. A closure for containers, according to claim 1, characterized in that the lower skirt internally has a retaining ring which is close to its lower edge.

7. A closure for containers, according to claim 1, characterized in that the lower skirt has in the outside surface a retaining outside ring, and an abutting ring at the top.

8. A closure for containers, according to claim 1, characterized in that a spur upstands from the inner and front part of the beginning of the cylindrical tube.

9. A closure for containers, according to claim 1, characterized in that substantially cylindrical tube is constituted by two pouring wings which upon joining at the front form a pouring spout.

10. A closure for containers, according to claim 1, characterized in that the thickness of the free edge of the plugging cylindrical body is less than the remainder of its wall.

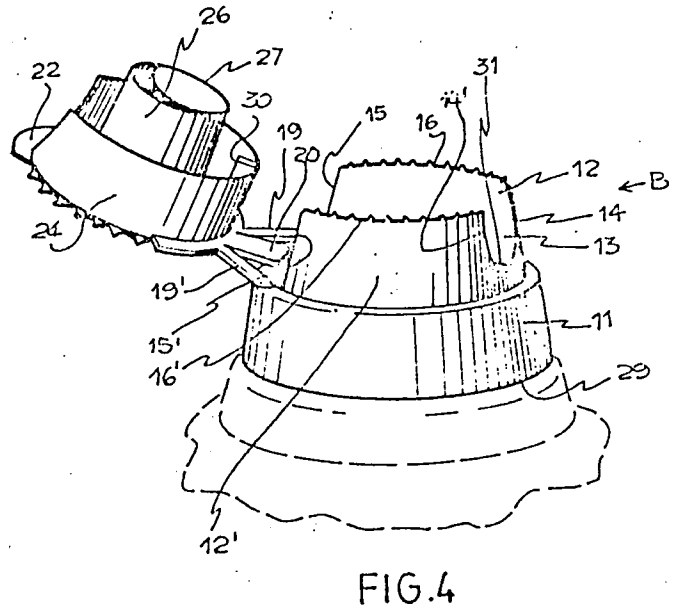
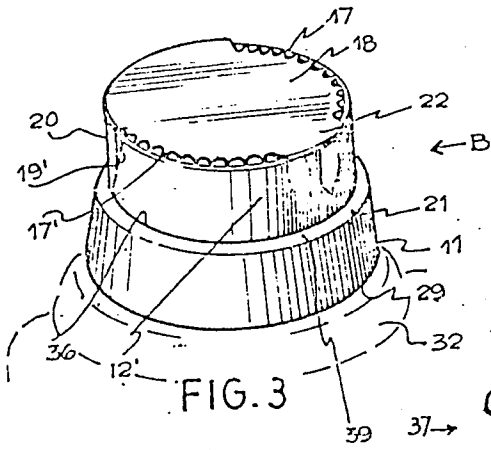
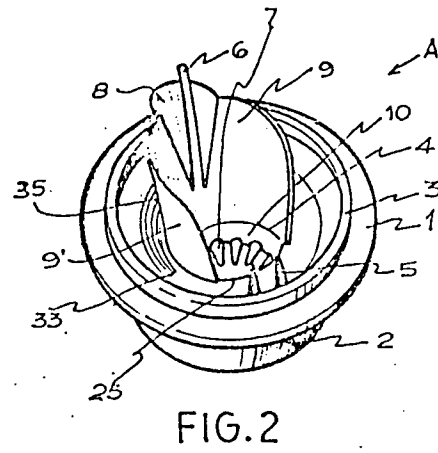
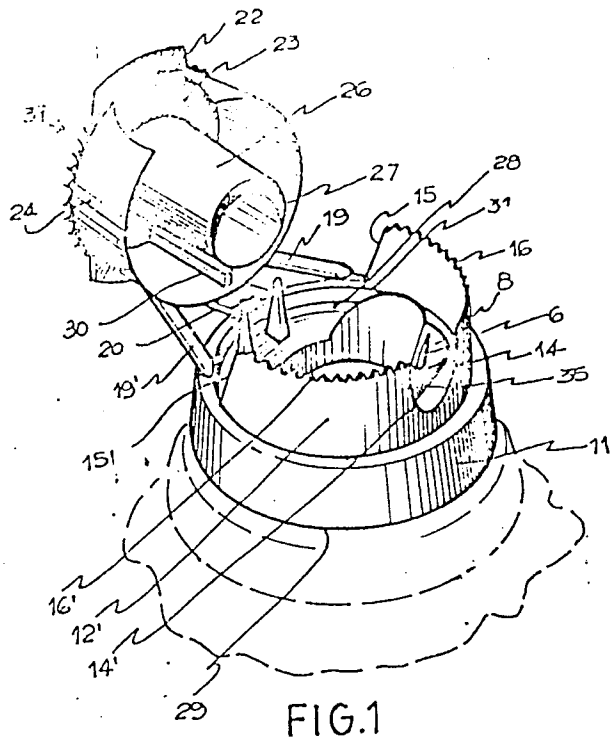
11. A closure for containers, according to claim 1, characterized in that a series of teeth in a horizontal plane are disposed at the lower edge of the collar. 5
12. A closure for containers, according to claim 1, characterized in that the upper edge of the cylindrical tube is funnel-shaped. 10
13. A closure for containers, according to claim 1, characterized in that a series of small rings having triangular section are disposed at the lower plane of the perforated disk and between its outer perimeter and the inserting skirt, said rings being coaxial with said skirt. 15
14. A closure for containers, according to claim 1, characterized in that the entire device is made of plastic material. 20
15. A closure for containers, according to claim 1, characterized in that the plugging cylindrical body is of solid construction. 25
16. A closure for containers according to claim 15, characterized in that the plugging solid cylindrical body is bevelled at its end. 30
17. A closure for containers according to claims 1 and 15, characterized in that the cylindrical tube is of reduced diameter. 35
18. A closure for containers according to claims 15, 16 and 17, characterized in that the narrow cylindrical tube tightly embraces the plugging solid cylindrical body. 40

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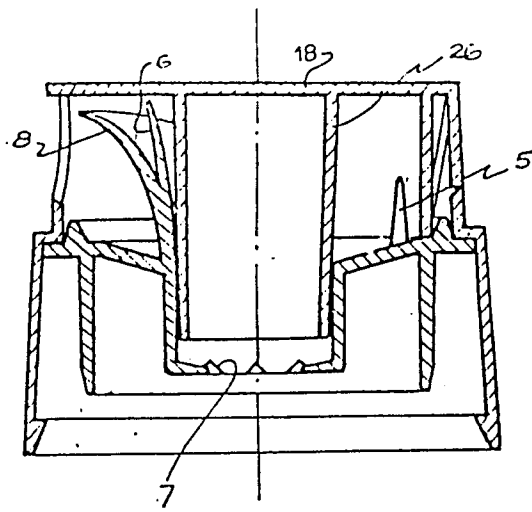


FIG. 5

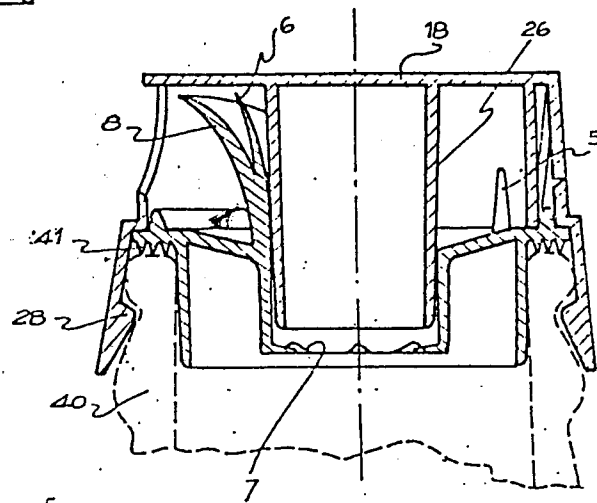


FIG. 6

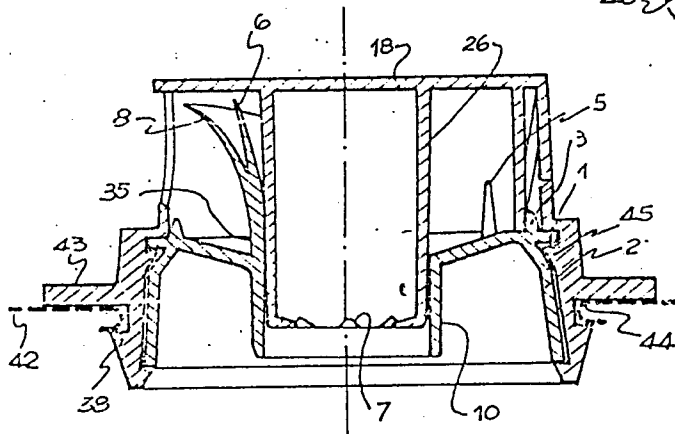


FIG. 7

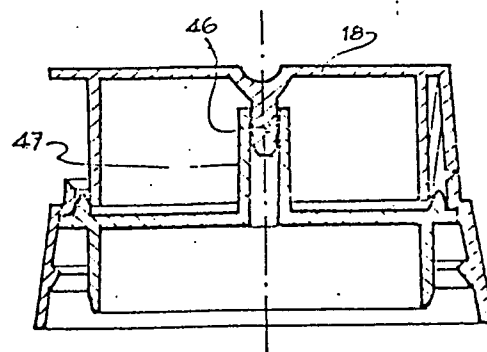


FIG. 8



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EUROPEAN SEARCH REPORT

Application Number

EP 92 11 8012

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	FR-A-2 309 425 (R. E. J. ANGELINO) * figures * ---	1,4,6, 17,18	B65D47/08
A	FR-A-2 141 671 (WEKU) * figures 3,4 * ---	1-3,8, 10,12, 14,17,18	
A	US-A-2 886 218 (WILLIAM MARCUS) * fig.1, reference 16; fig.3 * -----	11	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27 JANUARY 1993	Examiner MARTIN A.G.M.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons & : member of the same patent family, corresponding document			